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103.1007.02 (NAP-010)

REMARKS:

Claims 1 to 22 have been cancelled without prejudice or disclaimer of subject matter. Claims 23 to 58 have been added and are in the application. Claims 23, 35 and 47 are the independent claims herein. Reconsideration and further examination are respectfully requested.

Claims 1 to 12 have been cancelled in favor of claims that cast the invention in a different form. In particular, instead of claiming an entire file server system, claims 23 to 34 recite a file server. These claims have been cast in this fashion so that the claims can be infringed by a wider range of products than the original claims. Method claims 13 to 22 also have been cancelled in favor of new method claims that more closely follow the new file server claims. Finally, Beauregard-style claims have been added.

Claims 1 to 4, 6, and 13 to 16 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,781,716 (Hemphill). Claims 5, 7 and 17 were rejected under § 103(a) over Hemphill. Claims 8 to 12 and 18 to 22 were rejected under § 103(a) over Hemphill in view of U.S. Patent No. 5,720,029 (Kern).

While the new claims are worded somewhat differently than the original claims, both sets of claims are believed to recite elements that distinguish them from the applied art. In other words, the claims have not been rewritten for purposes of distinguishing the invention from the applied art. However, Applicant did take the opportunity to modify the language used for the elements of the claims in the interest of emphasizing how the claims differ from the applied art.

As recited by claim 23, one embodiment of the invention is a file server that includes a set of storage elements and at least a pair of nodes disposed in the file server. Each of the nodes is capable of processing file server commands for the set of storage elements. The file server also includes at least one inter-node connectivity element coupled to the nodes and a connection for coupling the file server commands to the nodes.

The applied art, alone or in combination, is not seen to disclose or to suggest the foregoing elements of claim 23, at least with respect to at least a pair of nodes disposed in a file server, each of which is capable of processing file server commands for the set of storage elements. One benefit of this arrangement is that if one node fails, the other node can take over processing of file server commands. Another benefit is that the nodes can alternate or otherwise trade off handling of commands, thereby enhancing efficiency.

Hemphill shows fault-tolerant multiple network servers in which multiple servers concurrently act as back-up servers for each other. Thus, as shown in Figure 1 of Hemphill, servers 100 and 200 are both connected to disk subsystems 102 and 202. However, each server itself is not seen to include plural nodes connected to one set of storage devices, with the nodes capable of processing file server commands for the set of storage devices. For example, primary controller 112 and recovery controller 116 in server 100 are connected to different disk subsystems 102 and 202, not to the same disk subsystem. Thus, Hemphill is not seen to disclose or to suggest claim 23's feature of at least a pair of nodes disposed in a file server, each of which is capable of processing file server commands for a set of storage elements.

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Kern shows a disaster recovery system that provides remote data shadowing between a primary and a secondary site. This system is not seen to add anything to remedy the foregoing deficiencies of Hemphill.

Thus, claim 23 is believed to be allowable over Hemphill and Kern. Claims 24 to 34 depend directly or indirectly from claim 23 and therefore are also believed to be allowable over Hemphill and Kern. Accordingly, allowance of claims 23 to 34 is respectfully requested.

Claims 35 to 46 are method claims substantially corresponding to claims 23 to 34. Claims 47 to 58 are Beauregard-style claims substantially corresponding to claims 35 to 46. Accordingly, claims 35 to 58 also are believed to be allowable over Hemphill and Kern, and such action is respectfully requested.

Closing

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney can be reached at (614) 486-3585. All correspondence should continue to be directed to the address indicated below.

Respectfully submitted,



Dated: June 12, 2002
The Swernofsky Law Group
P.O. Box 390013
Mountain View, CA 94039-0013
(650) 947-0700

Dane C. Butzer
Reg. No. 43,521

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Changes to Specification

Pursuant to 37 C.F.R. § 1.121(b)(iii), changes to the specification effected by the accompanying paper are indicated below.

The paragraph at page 9, line 19, to page 10, line 2, has been amended as follow:

A communication switch 212 couples adjacent rings 211. The communication switch 212 receives and transmits messages on each ring 211, and operates to bridge messages from a first ring 211 to a second ring 211. The communication switch 212 bridges those messages that are transmitted on the first ring 211 and designated for transmission to the second ring 211. A switch 212 can also be coupled directly to a file server node 111 [110].

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Changes to Claims

Pursuant to 37 C.F.R. § 1.121(c)(ii), changes to any claims effected by the accompanying paper are indicated below.

Claims 1 to 22 have been deleted.

Claims 23 to 58 have been added.